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EXAMINER	
PHILPOTT, JUSTIN M	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/753,227	ENGWER ET AL.	
	Examiner	Art Unit	
	Justin M. Philpott	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20060502*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed May 2, 2006 have been fully considered but they are not persuasive.

First, applicant argues (pages 8-9) with respect to claims 10 and 15 that the cited prior art does not teach "load balancing" information as detailed on page 8 of applicant's specification and in newly amended claims 12 and 13. However, these limitations are not recited in claims 10 and 15, and thus, applicant's argument is moot with respect to claims 10 and 15. Further, the newly added limitations recited in amended claims 12 and 13 are taught by the cited prior art as discussed in the following office action. Thus, applicant's argument is not persuasive.

Second, applicant argues (page 9, 11 and 12) that frame check sequences (FCS) are *not* well known in the art for frame-based communications. However, the following is a clear indication that not only are FCS sequences well known in the art for frame-based communications, but the art of Beach further indicates the implementation of such FCS according to the industry standard defined by IEEE. Specifically, "IEEE 100: The Authoritative Dictionary of IEEE Standards Terms, 7th Edition" defines frame check sequences (FCS) as "(3) (local area networks) A Cyclic Redundancy Check (CRC) used by the transmit and receive algorithms to detect errors in the bit sequence of a MAC frame". Additionally, Beach specifically teaches communications occur within a local area network (e.g., see abstract regarding "LAN") and that CRC is utilized in MAC frames in the invention (e.g., see col. 12, line 54 – col. 13, line 4 regarding "MAC frames" and "CRC"). Thus, guided by Beach in

indicating LAN communications use MAC frames with CRC (e.g., Beach in abstract and at col. 12, line 54 – col. 13, line 4), one of ordinary skill in the art would readily recognize that IEEE's definition of FCS recited above indicates that in local area networks (LANs), FCS are defined as CRC used for MAC frames. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include FCS in the invention of Beach since Beach specifically teaches communications occur within a local area network (e.g., see abstract regarding "LAN") and that CRC is utilized in MAC frames in the invention (e.g., see col. 12, line 54 – col. 13, line 4 regarding "MAC frames" and "CRC"), and since the readily recognized industry standards of IEEE indicate that in local area networks (LANs), FCS are defined as CRC used for MAC frames. Accordingly, applicant's argument is not persuasive.

Third, applicant asserts that "the Examiner has pointed out, the data slots 528 are assigned for unicast transmission (i.e., to a particular WU) and are not reserved for broadcast of a data frame as claimed [in claim 20]" (page 9). In response to this assertion, Examiner believes applicant is mistaken. Examiner has reviewed the rejection of claim 20 in the previous office action and *nowhere* has Examiner referred to "unicast" or similar language. On the contrary, Examiner has consistently stated the prior art teaches "logic to broadcast" as claimed by applicant. Thus, this argument is moot.

Fourth, applicant argues (page 10) that time slots in Chesson are not for exclusive use by the AP. However, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., time slots for exclusive use by the AP) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read

into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Thus, applicant's argument is moot.

Fifth, applicant argues that Koutroubinas does not teach a special DTIM beacon that comprises a field having a traffic indicator bit that is set to denote a transmission of a data frame after the DTIM beacon. However, Koutroubinas is not relied upon for this teaching. Rather, Koutroubinas is only relied upon for teaching a particular bit in a field denotes a specific transmission of a data frame after a beacon (e.g., see Koutroubinas at page 483). Accordingly, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Thus, applicant's argument is not persuasive.

Sixth, applicant argues (page 11) that it is not obvious to include *two* FCS. However, as discussed above, at the time of the invention it would have been obvious to one of ordinary skill in the art to include FCS in the invention of Beach since Beach specifically teaches communications occur within a local area network (e.g., see abstract regarding "LAN") and that CRC is utilized in MAC frames in the invention (e.g., see col. 12, line 54 – col. 13, line 4 regarding "MAC frames" and "CRC"), and since the readily recognized industry standards of IEEE indicates that in local area networks (LANs), FCS are defined as CRC used for MAC frames. Furthermore, with respect to applicant's argument that even if one FCS is obvious, *two* FCS would *not* be obvious, it is generally considered to be within the ordinary skill in the art to duplicate parts for a multiplied effect. St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11

(7th Cir. 1977). Thus, at the time of the invention it would have been obvious to utilize more than one FCS for additional benefits inherent in FCS implementation. Accordingly, applicant's argument is not persuasive.

Information Disclosure Statement

2. Each of the references cited in applicant's information disclosure statements to date have been considered by the Examiner to the extent required by MPEP. Additionally, it is noted herein that because of the large number of references submitted by applicant, (to date, a total of 73 references), if applicant believes passages from a select few of these references may have significantly more relevance than the other references with respect to applicant's claimed invention, Examiner would welcome any additional statement(s) of relevance in response to this office action, *if applicable.* However, such further action by applicant is *not* required. See, *Magarl, L.L.C. v. Crane Co.*, 2004 WL 2750252, S.D. Ind., 2004 (considering when "an unduly burdensome Information Disclosure Statement" may rise to the level of inequitable conduct).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 12 and 35 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, regarding claim 12, while a portion of the newly added limitation of claim 12 *is* enabled by applicant's specification (i.e., "load balancing information includes an indicator whether the access point is able to access any additional wireless units" is enabled by page 8 of applicant's specification), the recitation of "besides a second plurality of wireless units associated with the access point, the second plurality of wireless units being less than or equal in number to the plurality of wireless units" is *not* enabled by applicant's specification. If applicant disagrees with this rejection, applicant is respectfully requested to provide page and line numbers and/or figure element numbers of where such a limitation is taught, either explicitly or implicitly, by applicant's originally filed specification.

Regarding claim 35, while the specification describes "load balance information ... provides ... characteristics of the wireless units ... that may include ... memory capacity for buffering", the specification does *not* indicate load balancing information may also include memory capacity *of the access point* for buffering as recited in claim 35. On the contrary, the specification enables only memory capacity *of the wireless units* for buffering. If applicant disagrees with this rejection, applicant is respectfully requested to provide page and line numbers and/or figure element numbers of where such a limitation is taught, either explicitly or implicitly, by applicant's originally filed specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 10, 12-16, 18-20, 22, 24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,067,297 to Beach in view of U.S. Patent Application Publication No. US 2002/0045428 A1 by Chesson.

Regarding claim 10, Beach teaches providing an access point (e.g., access point AP, mobile unit MU, extended access point EAP, see col. 4, line 63 – col. 5, line 27); and broadcasting a modified beacon (e.g., DTIM) from the access point (e.g., embedded access point EAP, see col. 11, lines 55-64) to a plurality of wireless units, the modified beacon comprises (i) a plurality of information elements comprising an access point name (e.g., AP_ID, see col. 11, line 3), an access point identifier information (e.g., identifying address, see col. 1, lines 47-48) and a load balancing information (e.g., see col. 1, lines 48-60 regarding hopping pattern, timing information, and associated mobile units; and col. 1, lines 61-64 regarding the information is included in the beacon).

However, Beach may not specifically disclose a first frame check sequence or load balancing characteristics pertaining to characteristics of a plurality of wireless units.

Chesson, like Beach, also teaches a method comprising a modified beach (e.g., see paragraphs 0043-0086) and further, teaches the beacon comprises load balancing information pertaining to characteristics of a plurality of wireless units in communication with an access point and transmitting the beacon by the access point (e.g., see paragraph 0050 regarding

overlaid start beacon 520 comprising information pertaining to the time slot assigned for each node). Also, the modified beacon teachings of Chesson are directed towards frame-based communications (e.g., see Chesson, paragraph 0043). While Beach in view of Chesson may not specifically disclose frame check sequences (FCS) are utilized, Examiner takes official notice that FCS is well known in the art for frame-based communications. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include one or more FCS in the frame-based communications of Beach in view of Chesson since implementing FCS is well known in the art for frame-based communications. Additionally, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Regarding claims 12 and 13, Beach teaches the wireless unit decides whether or not to associate with a given access unit based on "any information the access unit may have issued indicating how many mobile units are associated with it" (col. 1, lines 52-56). Thus, Beach teaches the load balancing information comprises an indicator as to whether the access point is able to access one or more additional wireless units besides a second plurality of fewer wireless units associated with the access point, since "any information" indicating the number of mobile units that are/can be associated with the access unit encompasses "an indicator" as recited in claim 12. Further, regarding claim 13, Beach similarly teaches an indicator which indicates whether a count of a number of wireless units exchanging data at a rate exceeds a predetermined

threshold (i.e., "any information" includes that which indicates the threshold number of mobile units that can be associated with the access unit).

Regarding claim 14, Beach teaches a beacon comprises a DTIM beacon and a TIM beacon (e.g., see col. 11, lines 13-63).

Regarding claim 15, Beach teaches a method comprising: modifying a beacon to produce a modified beacon (e.g., beacon comprising TIM and DTIM fields, see col. 11, line 1 – col. 12, line 51), the modified beacon (e.g., beacon) comprises a plurality of additional information elements comprising an access point name (e.g., AP_ID, see col. 11, line 3), an access point identifier information (e.g., identifying address, see col. 1, lines 47-48) and a load balancing information (e.g., see col. 1, lines 48-60 regarding hopping pattern, timing information, and associated mobile units; and col. 1, lines 61-64 regarding the information is included in the beacon); and transmitting the modified beacon (e.g., see col. 11, lines 59-60).

However, Beach may not specifically disclose load balancing information pertains to characteristics of at least one wireless unit in communication with an access point and transmitting the beacon by the access point. Chesson, like Beach, also teaches a method comprising a modified beach (e.g., see paragraphs 0043-0086) and further, teaches the beacon comprises load balancing information pertaining to characteristics of at least one wireless unit in communication with an access point and transmitting the beacon by the access point (e.g., see paragraph 0050 regarding overlaid start beacon 520 comprising information pertaining to the time slot assigned for each node). Additionally, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the

invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Regarding claim 16, the modified beacon teachings of Chesson are directed towards frame-based communications (e.g., see Chesson, paragraph 0043). While Beach in view of Chesson may not specifically disclose frame check sequences (FCS) are utilized, Examiner takes official notice that FCS is well known in the art for frame-based communications. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include one or more FCS in the frame-based communications of Beach in view of Chesson since implementing FCS is well known in the art for frame-based communications. Also, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Regarding claim 18, Beach teaches the modified beacon (e.g., beacon) is a DTIM beacon (e.g., see col. 11, lines 19-22, beacon comprising a set DTIM field).

Regarding claim 19, Beach teaches the modified beacon (e.g., beacon) is a TIM beacon (e.g., see col. 11, lines 19-22, beacon comprising a set TIM field).

Regarding claim 20, Beach teaches an access point (e.g., access point AP, mobile unit MU, extended access point EAP, see col. 4, line 63 – col. 5, line 27) in accordance with IEEE 802.11 comprising: logic to broadcast a special delivery traffic indication message DTIM

beacon (e.g., see col. 11, lines 13-22) comprising a traffic indicator (e.g., DTIM field within beacon frames are set, see col. 11, lines 19-21) to denote transmission of a data frame (i.e., access point has data queued for future transmission, see col. 11, lines 21-22); and logic to broadcast the data frame immediately after broadcasting the special DTIM beacon (e.g., see col. 11, line 55 – col. 12, line 7), the data frame comprises at least one of a load balancing information (e.g., see col. 1, lines 48-60 regarding hopping pattern, timing information, and associated mobile units; and col. 1, lines 61-64 regarding the information is included in the beacon).

However, Beach may not specifically disclose a data frame is a first frame transmitted after the beacon. As discussed above, Chesson also teaches a modified beacon method, and further, teaches a data frame (e.g., in the data slot at 528 in FIG. 1) is a first frame transmitted after the beacon (e.g., after overlaid start beacon 520, see FIG. 1 and paragraphs 0048-0069). Additionally, as discussed above, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Regarding claim 22, Beach teaches the load balancing information comprises data pertaining to characteristics of wireless units in communication with the access point (e.g., see col. 1, lines 52-56 regarding indication of how many mobile units are already associated with the access point).

Regarding claim 24, Chesson also teaches broadcasting a data frame (e.g., via second data slot 528, see FIG. 1) after a definitive time period (e.g., the time period for the first time slot 528) has elapsed after a special beacon has been broadcasted (e.g., via start beacon 520). As discussed above, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Regarding claim 29, Beach teaches the system is configured in accordance with the IEEE 802.11 standard protocol (e.g., see col. 3, lines 9-11).

7. Claims 2, 3, 5-8, 25-28, 30-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Chesson, further in view of the article entitled, "A New Efficient access Protocol for Integrating Multimedia Services in the Home Environment" (IEEE, June 1999) by Koutroubinas et al.

Regarding claim 2, Beach in view of Chesson teaches a method and access point logic as discussed above regarding claim 1, and further, Beach teaches the method and access point logic is in accordance with IEEE 802.11 (e.g., see col. 3, lines 8-11) comprising: broadcasting a special delivery traffic indication message DTIM beacon by an access point (e.g., see col. 11, lines 13-22), the DTIM beacon having at least a traffic indicator bit that is set (e.g., DTIM field within beacon frames are set, see col. 11, lines 19-21) to denote data is to be transmitted after the

DTIM beacon (i.e., access point has data queued for future transmission, see col. 11, lines 21-22), and broadcasting by the access point the data frame after broadcasting the special DTIM beacon (e.g., see col. 11, line 55 – col. 12, line 7), the data frame comprises at least load balancing information (e.g., see col. 1, lines 48-60 regarding hopping pattern, timing information, and associated mobile units; and col. 1, lines 61-64 regarding the information is included in the beacon).

However, Beach may not specifically disclose a data frame is a first frame transmitted after the beacon. As discussed above, Chesson also teaches a modified beacon method, and further, teaches a data frame (e.g., in the data slot at 528 in FIG. 1) is a first frame transmitted after the beacon (e.g., after overlaid start beacon 520, see FIG. 1 and paragraphs 0048-0069). Additionally, as discussed above, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

However, Beach in view of Chesson may not specifically disclose a particular bit in a field denotes a specific transmission of a data frame after the beacon.

Koutroubinas also teaches a beacon in accordance with IEEE 802.11 and further, specifically teaches a beacon (e.g., Beacon B, see page 483, column 2, third-fifth paragraphs) comprises a field having a traffic indicator bit (e.g., Network Allocation Vector NAV value) that is set to denote a transmission of a data frame after the special beacon. The teachings of

Koutroubinas provide dynamic bandwidth allocation for improved system efficiency (e.g., see page 486, section "IV. Conclusion"). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include the information of the IEEE 802.11 configured Beacon (B) of Koutroubinas within the IEEE 802.11 DTIM beacon of Beach in view of Chesson in order to provide dynamic bandwidth allocation for improved system efficiency.

Regarding claim 3, Beach teaches the system is configured in accordance with the IEEE 802.11 standard protocol (e.g., see col. 3, lines 9-11).

Regarding claim 5, Beach teaches a method and access point logic in accordance with IEEE 802.11 comprising: broadcasting a special delivery traffic indication message DTIM beacon (e.g., see col. 11, lines 13-22) by an access point (e.g., embedded access point EAP, see col. 11, lines 55-64), the DTIM beacon having at least a traffic indicator bit that is set (e.g., DTIM field within beacon frames are set, see col. 11, lines 19-21) to denote data is to be transmitted after the DTIM beacon (i.e., access point has data queued for future transmission, see col. 11, lines 21-22), and broadcasting the data frame that includes at least load balancing information (e.g., see col. 1, lines 48-60 regarding hopping pattern, timing information, and associated mobile units; and col. 1, lines 61-64 regarding the information is included in the beacon) by the access point (e.g., embedded access point EAP, see col. 11, lines 55-64), the data frame being broadcast after a definitive time period has elapsed after broadcasting of the special DTIM beacon (e.g., see col. 11, line 55 – col. 12, line 7).

However, as discussed above regarding claim 2, Beach may not specifically disclose a data frame is a first frame transmitted after the beacon. As discussed above, Chesson also teaches a modified beacon method, and further, teaches a data frame (e.g., in the data slot at 528

in FIG. 1) is a first frame transmitted by an access point after the beacon (e.g., after overlaid start beacon 520, see FIG. 1 and paragraphs 0048-0069). Additionally, as discussed above, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

Koutroubinas also teaches a beacon in accordance with IEEE 802.11 and further, specifically teaches a beacon (e.g., Beacon B, see page 483, column 2, third-fifth paragraphs) comprises a field having a traffic indicator bit (e.g., Network Allocation Vector NAV value) that is set to denote a transmission of a data frame after the special beacon. Further, Koutroubinas teaches that each Beacon packet defines the timing of the transmission of data traffic, and therefore, the teachings of Koutroubinas encompass data frames being broadcast after a definitive time period has elapsed after the broadcasting of the special beacon (e.g. see page 483, column 2, fourth paragraph, lines 5-8). The teachings of Koutroubinas provide dynamic bandwidth allocation for improved system efficiency (e.g., see page 486, section "IV. Conclusion"). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include the information of the IEEE 802.11 configured Beacon (B) of Koutroubinas within the IEEE 802.11 DTIM beacon of Beach in order to provide dynamic bandwidth allocation for improved system efficiency.

Regarding claim 6, Beach in view of Chesson in view of Koutroubinas teach the method discussed above regarding claim 5, and further, Chesson teaches load balancing information

includes an indication of a number of wireless units in communication with the access point (e.g., see paragraph 0050 regarding time slot assignment for respective nodes which implicitly includes a count of which nodes are in communication with the access point). Additionally, as discussed above, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in view of Chesson in order to provide improved efficiency and system compatibility.

Regarding claim 7, Beach teaches the broadcasting of both the special DTIM beacon and the data frame is performed by an access point to the device being a wireless unit of a plurality of wireless units (e.g., see FIG. 2 and cols. 5-6).

Regarding claim 8, Beach teaches the load balancing information is computed from information pertaining to characteristics of wireless units in communication with the access point (e.g., see col. 1, lines 52-56 regarding indication of how many mobile units are already associated with the access point).

Regarding claims 25 and 32, Beach teaches the load balancing information comprises a count of a number of wireless units currently associated with the access point, or total utilization level of the access point (e.g., see col. 1, lines 52-56 regarding indication of how many mobile units are already associated with the access point).

Regarding claims 26 and 28, Beach teaches the wireless unit decides whether or not to associate with a given access unit based on "any information the access unit may have issued

indicating how many mobile units are associated with it" (col. 1, lines 52-56). Thus, Beach teaches the load balancing information comprises an indicator as to whether the access point is able to access one or more additional wireless units, since "any information" indicating the number of mobile units that are/can be associated with the access unit encompasses "an indicator" as recited in claim 26. Further, regarding claim 28, Beach similarly teaches an indicator which indicates whether a count of a number of wireless units exchanging data at a rate exceeds a predetermined threshold (i.e., "any information" includes that which indicates the threshold number of mobile units that can be associated with the access unit).

Regarding claims 27 and 34, Koutroubinas teaches a value (e.g., Beacon period) corresponding to a speed (e.g., frame rate) of an uplink from the access point to a backbone network at which the access point is coupled (e.g., see page 485, column 2, lines 4-5). As discussed above, the teachings of Koutroubinas provide dynamic bandwidth allocation for improved system efficiency (e.g., see page 486, section "IV. Conclusion"). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include the information of the IEEE 802.11 configured Beacon (B) of Koutroubinas within the IEEE 802.11 DTIM beacon of Beach in view of Chesson in order to provide dynamic bandwidth allocation for improved system efficiency.

Regarding claim 30, Beach teaches the system is configured in accordance with the IEEE 802.11 standard protocol (e.g., see col. 3, lines 9-11).

Regarding claim 31, Beach teaches the device is a wireless unit (e.g., see FIG. 2).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Chesson, further in view of U.S. Patent No. 5,548,821 to Coveley.

Regarding claim 17, Beach in view of Chesson teaches the method as described above regarding claim 16, however, may not specifically disclose the beacon comprises a test pattern and a second frame check sequence. Coveley teaches an adaptive system for self-tuning in a wireless communications environment whereby a test pattern (e.g., test sequence) is transmitted and a receiver determines which operating frequency to select based upon the accuracy of the received test pattern with a known test pattern (e.g., see col. 1, line 62 – col. 2, line 55). The teachings of Coveley provide improved accuracy of transmission and overcomes prior art disadvantages such as receiving center operating frequency drift, and further, the teachings of Coveley permit transmitters to have slightly different carrier frequencies which more suitably accommodates systems with less precise transmission frequencies (e.g., see col. 2, lines 1-8). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Coveley to the method of Beach in view of Chesson in order to provide improved accuracy of transmission and to accommodate a greater range of transmission frequency variance.

Further, as discussed above regarding claim 16, the modified beacon teachings of Chesson are directed towards frame-based communications (e.g., see Chesson, paragraph 0043). While Beach in view of Chesson may not specifically disclose frame check sequences (FCS) are utilized, Examiner takes official notice that FCS is well known in the art for frame-based communications. Further, it is generally considered to be within the ordinary skill in the art to duplicate parts for a multiplied effect. St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11

(7th Cir. 1977). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include a second frame check sequence (FCS) in the beacon of Beach in view of Chesson in view of Coveley, since it is generally considered to be within the ordinary skill in the art to duplicate parts for a multiplied. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include one or more FCS in the frame-based communications of Beach in view of Chesson since implementing FCS is well known in the art for frame-based communications. Also, the teachings of Chesson provide a modified beacon method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

9. Claims 4, 9, 11, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view Chesson in view of Koutroubinas, further in view of U.S. Patent No. 5,548,821 to Coveley.

Regarding claims 4, 9, 11, 21 and 23, Beach in view of Chesson in view of Koutroubinas teach the method as described above regarding claims 3 and 20, however, may not specifically disclose transmitting a static bit test pattern. Coveley teaches an adaptive system for self-tuning in a wireless communications environment whereby a static bit test pattern (e.g., test sequence) is transmitted and a receiver determines which operating frequency to select based upon the accuracy of the received test pattern with a known test pattern (e.g., see col. 1, line 62 – col. 2,

line 55). The teachings of Coveley provide improved accuracy of transmission and overcomes prior art disadvantages such as receiving center operating frequency drift, and further, the teachings of Coveley permit transmitters to have slightly different carrier frequencies which more suitably accommodates systems with less precise transmission frequencies (e.g., see col. 2, lines 1-8). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Coveley to the method of Beach in view of Chesson in view of Koutroubinas in order to provide improved accuracy of transmission and to accommodate a greater range of transmission frequency variance.

Further, regarding claims 11 and 17, as discussed above regarding claim 16, the modified beacon teachings of Chesson are directed towards frame-based communications (e.g., see Chesson, paragraph 0043). While Beach in view of Chesson in view of Koutroubinas may not specifically disclose frame check sequences (FCS) are utilized, Examiner takes official notice that FCS is well known in the art for frame-based communications. Further, it is generally considered to be within the ordinary skill in the art to duplicate parts for a multiplied effect. St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th Cir. 1977). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include a second frame check sequence (FCS) in the beacon of Beach in view of Chesson in view of Koutroubinas in view of Coveley, since it is generally considered to be within the ordinary skill in the art to duplicate parts for a multiplied. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to include one or more FCS in the frame-based communications of Beach in view of Chesson in view of Koutroubinas since implementing FCS is well known in the art for frame-based communications. Also, the teachings of Chesson provide a modified beacon

method with reduced overhead and increased number of operational modes for improved efficiency and system compatibility (e.g., see paragraphs 0034-0040). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the modified beacon teachings of Chesson to the modified beacon method of Beach in order to provide improved efficiency and system compatibility.

10. Claims 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beach in view of Chesson, further in view of U.S. Patent No. 6,456,597 to Bare.

Regarding claim 33, Beach in view of Chesson teach the method discussed above regarding claim 10, however, may not specifically disclose load balancing information includes a number of wireless hops to a wired backbone network with which the access point is in communication. Bare, like Beach, also teaches wireless communications using MAC in a LAN (e.g., see abstract), and specifically, Bare teaches load balancing information (e.g., see "load balance" in abstract and at col. 56, lines 38-52) includes a number of wireless hops (e.g., see col. 29, line 1 – col. 30, line 53 regarding "hop count" in a given "load balance domain") to a wired backbone network with which the access point is in communication (e.g., see col. 30, lines 43-53 regarding the "hop count field" being set to zero by the edge switch, inherently coupling the access point to the wired backbone through one or more additional switch elements, and is incremented by each switch the packet encounters). Additionally, the teachings of Bare also provides "improved utilization of the aggregate bandwidth of all paths in [a] network", "rapid discovery of a device corresponding to an unknown destination MAC address", and "reduce[d] ... number of overhead packet transmissions (see col. 6, lines 12-24). Thus, at the time of the

invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Bare to the method of Beach in view of Chesson in order to provide improved utilization of the aggregate bandwidth of all paths in a network, rapid discovery of a device corresponding to an unknown destination MAC address, and reduced number of overhead packet transmissions (see Bare at col. 6, lines 12-24).

Regarding claim 35, Beach in view of Chesson teach the method discussed above regarding claim 10, however, may not specifically disclose load balancing information includes a memory capacity of the access point or wireless device for buffering. Bare, like Beach, also teaches wireless communications using MAC in a LAN (e.g., see abstract), and specifically, Bare teaches load balancing information (e.g., see "load balance" in abstract and at col. 56, lines 38-52) includes a memory capacity of the access point or wireless device for buffering (e.g., see col. 12, lines 37-67 regarding number of bytes queued on inbound and outbound queues being included in the load balance protocol packets). Additionally, as discussed above, the teachings of Bare also provides "improved utilization of the aggregate bandwidth of all paths in [a] network", "rapid discovery of a device corresponding to an unknown destination MAC address", and "reduce[d] ... number of overhead packet transmissions (see col. 6, lines 12-24). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the teachings of Bare to the method of Beach in view of Chesson in order to provide improved utilization of the aggregate bandwidth of all paths in a network, rapid discovery of a device corresponding to an unknown destination MAC address, and reduced number of overhead packet transmissions (see Bare at col. 6, lines 12-24).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M. Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571.272.3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin M. Philpott

CHI PHAM
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